

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of producing a carbon nanostructure wherein a carbon crystal is grown by vapor phase epitaxy from a crystal growth surface of a catalyst base [(17)] including a catalyst material [(11)], wherein said catalyst base [(17)] is formed by diameter-reduction processing.

2. (Currently Amended) The method of producing a carbon nanostructure according to claim 1, wherein said catalyst base [(17)] is formed as an aggregate including an arrangement of a plurality of catalyst structures each formed with a non-catalyst material [(12)], a material not having a substantial catalytic function for growth of said carbon crystal, formed on at least a portion of a side surface of said catalyst material [(11)] of a columnar shape having said crystal growth surface as a top surface.

3. (Currently Amended) The method of producing a carbon nanostructure according to claim 2, wherein a non-catalyst material [(15)] is formed on at least a portion of a side surface of said aggregate, and said catalyst structures have variations of at most CV 10% in surface areas of said catalyst material [(11)] on said crystal growth surface.

4. (Currently Amended) The method of producing a carbon nanostructure according to claim 2, wherein said catalyst material [(11)] is formed with at least one of a member selected from the group consisting of Fe, Co, Mo, and Ni, and said non-catalyst material [(12)] is formed with Ag and/or an Ag-containing alloy.

5. (Currently Amended) The method of producing a carbon nanostructure according to claim 2, wherein

surface processing is performed by at least one of oxidation, nitriding and carbonization to define an interface between said catalyst material [(11)] and said non-catalyst material [(12)] on said crystal growth surface.

6. (Currently Amended) The method of producing a carbon nanostructure according to claim 2, wherein

said catalyst base [(17)] having a multilayer structure is formed by alternately stacking said catalyst material [(11)] and said non-catalyst material [(12)] by a vapor phase method.

7. (Original) The method of producing a carbon nanostructure according to claim 1, wherein

said diameter-reduction processing is performed by at least any of drawing, extrusion, rolling, and forging.

8. (Currently Amended) The method of producing a carbon nanostructure according to claim 1, wherein

said diameter-reduction processing is performed such that, an outside diameter of a solid or hollow catalyst material [(11)] after the diameter-reduction processing becomes at least 1×10^{-6} % and at most 1 % of that before the diameter-reduction processing.

9. (Currently Amended) The method of producing a carbon nanostructure according to claim 1, wherein

said catalyst material [(11)] has a multilayer structure on the crystal growth surface.

10. (Currently Amended) The method of producing a carbon nanostructure according to claim 1, wherein

said catalyst base [(17)] is formed such that, said catalyst material [(11)] has at least any of a round shape, a ring-like shape, a polygonal shape, a spiral shape, a waved shape, and a branching shape on the crystal growth surface.

11. (Original) The method of producing a carbon nanostructure according to claim 1, wherein

mechanical polishing and/or sputtering is performed as surface processing for said crystal growth surface.

12. (Currently Amended) The method of producing a carbon nanostructure according to claim 11, wherein
an ion is entered into said catalyst material [(11)] before and/or after said surface processing.

13 (Currently Amended) The method of producing a carbon nanostructure according to claim 1, comprising the steps of:
supplying carbon from a non-crystal growth surface of said catalyst base [(17)] to set at least a portion of carbon in said catalyst material [(11)] to a saturated state; and
growing a carbon crystal from said crystal growth surface.

14. (Currently Amended) The method of producing a carbon nanostructure according to claim 1, wherein
a reducing gas is brought into contact with at least the crystal growth surface of said catalyst material [(11)] before or during growth of the carbon crystal.

15. (Currently Amended) The method of producing a carbon nanostructure according to claim 1, wherein
a material gas and/or carbon is ionized and brought into contact with said catalyst base [(17)].